

**IN THE CLAIMS:**

The following claim listing replaces all prior claim versions and claim listings in the application.

1. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof, said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in the vehicle and a rearward portion for location rearwardly in the vehicle;

an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure, said inflation fluid source being free from pyrotechnic material for heating said inflation fluid; and

a fill tube having a portion located in said inflatable vehicle occupant protection device extending into said forward portion and said rearward portion of said inflatable volume, said fill tube being in fluid communication with said inflation fluid source, said inflation fluid source,

when actuated, providing said inflation fluid to said fill tube, said fill tube including outlet apertures positioned along said portion of said fill tube for directing said inflation fluid into said inflatable volume to pressurize said forward and rearward portions evenly along the length of said inflatable vehicle occupant protection device and to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first pressure, for at least the initial 5-7 seconds of inflation;

said inflation fluid being directed through said outlet apertures into said forward portion and said rearward portion of said inflatable volume to inflate said forward and rearward portions, said inflation fluid directed into said forward portion and said inflation fluid directed into said rearward portion having generally the same temperature and generally the same pressure during initial inflation of said inflatable vehicle occupant protection device, said inflation fluid in said inflatable vehicle occupant protection device having a temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated for at least 95% of at least the initial 5-7 seconds of inflation.

2. (Original) Apparatus as defined in claim 1, wherein said fill tube has a predetermined number of said outlet apertures spaced a predetermined distance apart from each

other along said portion of said fill tube, said predetermined number of outlet apertures and said predetermined distance being selected to provide said inflation fluid in said forward and rearward portions at generally the same pressure and temperature.

3. (Original) Apparatus as defined in claim 2, wherein said outlet apertures are arranged in groups, each of said groups including a plurality of said outlet apertures, said groups being spaced apart from each other along said portion of said fill tube.

4. (Original) Apparatus as defined in claim 3, wherein said inflatable volume is defined by a perimeter of said inflatable vehicle occupant protection device, said perimeter being at least partially defined by an upper edge and an opposite lower edge of said inflatable vehicle occupant protection device and front and rear edges spaced apart horizontally along said upper and lower edges, said upper edge extending along the side structure of the vehicle adjacent the roof of the vehicle.

5. (Original) Apparatus as defined in claim 4, wherein said fill tube has a first end connected to said inflation fluid source and an opposite second end located in said inflatable vehicle occupant protection device, said first end being positioned outside said inflatable vehicle occupant

protection device near said rear edge of said inflatable vehicle occupant protection device.

6. (Original) Apparatus as defined in claim 5, wherein said outlet apertures are arranged in four groups spaced apart along said fill tube.

7. (Original) Apparatus as defined in claim 6, wherein each of said outlet apertures has a center and a diameter of about 7.0-9.0 millimeters, said outlet apertures in each of said four groups being arranged along a line and spaced along said line, said centers of adjacent apertures in each said group being spaced about 12 millimeters apart.

8. (Original) Apparatus as defined in claim 6, wherein a first group of outlet apertures includes 3 of said outlet apertures.

9. (Original) Apparatus as defined in claim 8, wherein said first group of outlet apertures is spaced about 490 millimeters from said first end of said fill tube.

10. (Original) Apparatus as defined in claim 8, wherein a second group of outlet apertures includes 5 of said outlet apertures.

11. (Original) Apparatus as defined in claim 10, wherein said second group of outlet apertures is spaced about 144 millimeters from said first group of outlet apertures.

12. (Original) Apparatus as defined in claim 10, wherein a third group of outlet apertures includes 8 of said outlet apertures.

13. (Original) Apparatus as defined in claim 12, wherein said third group of outlet apertures is spaced about 485 millimeters from said second group of outlet apertures.

14. (Original) Apparatus as defined in claim 12, wherein a fourth group of outlet apertures includes 8 of said outlet apertures.

15. (Original) Apparatus as defined in claim 14, wherein said fourth group of outlet apertures is spaced about 85 millimeters from said third group of outlet apertures.

16. (Original) Apparatus as defined in claim 2, wherein said fill tube has an outside diameter of about 15.875 millimeters and a wall thickness of about 0.71 millimeters.

17. (Original) Apparatus as defined in claim 1, wherein said inflation fluid is directed through each of said outlet apertures at a supersonic velocity.

18. (Original) Apparatus as defined in claim 17, wherein the supersonic velocity of said inflation fluid creates a shock wave that causes the temperature of said inflation fluid to increase.

19. (Original) Apparatus as defined in claim 1, wherein said inflatable vehicle occupant protection device includes a non-inflatable portion located between said forward portion and said rearward portion.

20. (Original) Apparatus as defined in claim 1, wherein said inflatable vehicle occupant protection device is an inflatable curtain having a stored position extending along the side structure adjacent a roof of the vehicle, said inflatable curtain being inflated away from the vehicle roof into said position between the side structure of the vehicle and a vehicle occupant.

21. (Original) Apparatus as defined in claim 20, wherein said inflatable curtain when inflated extends along the side structure of the vehicle between an A pillar and a C pillar of the vehicle.

22. (Original) Apparatus as defined in claim 20, wherein said inflatable curtain, when inflated, overlies at least a portion of an A pillar, a B pillar and a C pillar of the vehicle.

23. (Original) Apparatus as defined in claim 1, further comprising a sensor for sensing a vehicle condition for which deployment of said inflatable vehicle occupant protection device is desired, said sensor actuating said inflation fluid source to provide inflation fluid to inflate said inflatable vehicle occupant protection device.

24. (Original) Apparatus as defined in claim 1, wherein said inflation fluid source comprises an inflator which is actuatable to inflate said inflatable vehicle occupant protection device.

25. (Original) Apparatus as defined in claim 24, wherein said inflator is a stored gas inflator, said inflation fluid being compressed and stored at about 6250 psig.

26. (Previously Presented) Apparatus as defined in claim 1, wherein said fill tube directs said inflation fluid into said inflatable vehicle occupant protection device at generally the same temperature and pressure throughout at least the initial 5-7 seconds of inflation.

27. (Original) Apparatus as defined in claim 26, wherein said inflation fluid inflates said inflatable vehicle occupant protection device evenly along the length of said inflatable vehicle occupant protection device.

33. (Original) Apparatus as defined in claim 1, wherein said first predetermined pressure is about 149-163 kilopascals absolute.

34. (Original) Apparatus as defined in claim 1, wherein said second predetermined pressure is about 125 kilopascals absolute.

35. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof, said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle;

an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure, said inflation fluid source being free from pyrotechnic material for heating said inflation fluid; and

a fill tube having a portion located in said inflatable vehicle occupant protection device extending into said inflatable volume, said fill tube being in fluid communication with said inflation fluid source, said inflation fluid source, when actuated, providing said inflation fluid to



said fill tube, said fill tube including outlet apertures positioned along said portion of said fill tube for directing said inflation fluid into said inflatable volume to pressurize said inflatable volume evenly along the length of said inflatable vehicle occupant protection device and to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first desired pressure, for at least the initial 5-7 seconds of inflation;

said inflation fluid being directed through said outlet apertures into said inflatable volume to inflate said inflatable volume, said inflation fluid directed into said inflatable volume having a temperature that is generally the same and a pressure that is generally the same throughout the length of said inflatable vehicle occupant protection device during initial inflation of said inflatable vehicle occupant protection device, said inflation fluid in said inflatable vehicle occupant protection device having a temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated for at least 95% of at least the initial 5-7 seconds of inflation.

36. (Original) Apparatus as defined in claim 35, wherein said fill tube has a predetermined number of said outlet apertures spaced a predetermined distance apart from each other along said portion of said fill tube, said predetermined number of outlet apertures and said predetermined distance

being selected to provide said inflation fluid in said forward and rearward portions at generally the same pressure and temperature.

37. (Previously Presented) Apparatus as defined in claim 35, wherein said fill tube directs said inflation fluid into said inflatable vehicle occupant protection device at generally the same temperature and pressure throughout at least the initial 5-7 seconds of inflation.

38. (Original) Apparatus as defined in claim 37, wherein said inflation fluid inflates said inflatable vehicle occupant protection device evenly along the length of said inflatable vehicle occupant protection device.

39. (Original) Apparatus as defined in claim 38, wherein said outlet apertures are positioned and spaced to cause said inflatable vehicle occupant protection device to inflate evenly along the length of said inflatable vehicle occupant protection device.

40. (Original) Apparatus as defined in claim 35, wherein said generally the same temperature is just above said ambient temperature in which said inflatable vehicle occupant protection device is inflated.

41. (Previously Presented) Apparatus as defined in claim 35, wherein said generally the same temperature is about

equal to said ambient temperature for at least 98% of at least the initial 5-7 seconds of inflation.

Claims 42-45 (Canceled).

46. (Previously Presented) A method for helping to protect an occupant of a vehicle that has a side structure and a roof, said method comprising the steps of:

providing an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in the vehicle and a rearward portion for location rearwardly in the vehicle;

providing an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid source, when actuated, providing said inflation fluid to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first pressure, for at least the initial 5-7 seconds of inflation, said inflation fluid consisting essentially of helium stored under pressure, said inflation

fluid source being free from pyrotechnic material for heating said inflation fluid; and

providing a fill tube for directing said inflation fluid into said forward portion and said rearward portion of said inflatable volume to pressurize said forward and rearward portions evenly along the length of said inflatable vehicle occupant protection device, said inflation fluid directed into said forward portion and said inflation fluid directed into said rearward portion having a temperature that is generally the same and a pressure that is generally the same during initial inflation of said inflatable vehicle occupant protection device to cause said inflatable vehicle occupant protection device to inflate evenly throughout the length of said inflatable vehicle occupant protection device, said inflation fluid directed into said inflatable vehicle occupant protection device having a temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated for at least 95% of at least the initial 5-7 seconds of inflation.

47. (Canceled).

48. (Previously Presented) The method of claim 46, further comprising the steps of providing said fill tube having a predetermined cross-sectional flow area and a predetermined number of said outlet apertures spaced a predetermined distance apart from each other along said portion of said fill tube, said predetermined cross-sectional

flow area, said predetermined number of outlet apertures, and said predetermined distance being selected to provide said inflation fluid in said forward and rearward portions at generally the same pressure and temperature.

49. (Original) The method of claim 48, further comprising the steps of arranging said outlet apertures in groups that include a plurality of said outlet apertures and spacing said groups apart from each other along said portion of said fill tube.

50. (Original) The method of claim 49, further comprising the steps of creating a computer-generated model to select said predetermined number of said outlet apertures and said predetermined spacing of said outlet apertures.

51. (Original) The method of claim 50, wherein said step of creating a computer-generated model comprises creating a two-dimensional computational fluid dynamics model.

52. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof; said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device

defining an inflatable volume and having a length extending along the side structure of the vehicle;

an inflation fluid source for providing inflation fluid to inflate said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure, said inflation fluid source being free from pyrotechnic material for heating said inflation fluid; and

a fill tube having a portion located in said inflatable vehicle occupant protection device, said fill tube being in fluid communication with said inflation fluid source, said inflation fluid source, when actuated, providing said inflation fluid to said fill tube, said fill tube directing said inflation fluid into said inflatable volume to pressurize said inflatable vehicle occupant protection device evenly along its length and to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first pressure, for at least the initial 5-7 seconds of inflation, said fill tube being adapted to deliver said inflation fluid into said inflatable volume such that said inflation fluid directed into said inflatable vehicle occupant protection device has a temperature about just above an ambient temperature in which said inflatable vehicle occupant protection device is inflated.

53. (Original) Apparatus as defined in claim 52, wherein said fill tube is adapted to deliver said inflation fluid in said inflatable volume at said temperature about just above said ambient temperature generally equally throughout the length of said inflatable vehicle occupant protection device during initial inflation of said inflatable vehicle occupant protection device.

54. (Original) Apparatus as defined in claim 53, wherein said fill tube is adapted to deliver said inflation fluid into said inflatable volume at generally the same pressure along the length of said inflatable vehicle occupant protection device during initial inflation of said inflatable vehicle occupant protection device to cause said inflatable vehicle occupant protection device to inflate evenly along the length of said inflatable vehicle occupant protection device.

55. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof, said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in

the vehicle and a rearward portion for location rearwardly in the vehicle;

an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure; and

means for directing said inflation fluid into said inflatable volume to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first desired pressure, for at least the initial 5-7 seconds of inflation, said means being for directing said inflation fluid into said forward portion and said rearward portion of said inflatable volume to inflate said forward and rearward portions, said means also being for directing said inflation fluid into said forward portion and into said rearward portion at generally the same temperature and generally the same pressure during initial inflation of said inflatable vehicle occupant protection device, said inflation fluid in said inflatable vehicle occupant protection device having a temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated for at least 95% of the at least 5-7 seconds of inflation;

said means for directing comprising a fill tube having a portion located in said inflatable vehicle occupant protection device extending into said forward portion and said rearward portion of said inflatable volume, said fill tube



being in fluid communication with said inflation fluid source, said inflation fluid source, when actuated, providing said inflation fluid to said fill tube, said fill tube including outlet apertures positioned along said portion of said fill tube through which said inflation fluid is directed into said forward and rearward portions of said inflatable volume to pressurize said forward and rearward portions evenly along the length of said inflatable vehicle occupant protection device and.

56. (Original) Apparatus for helping to protect an occupant of a vehicle that has a side structure, said apparatus comprising:

- an inflatable side curtain having a length extending along the vehicle side structure;

- a stored helium inflator for providing helium inflation fluid for inflating said side curtain, said inflator being free from pyrotechnic material for heating said helium inflation fluid; and

- a fill tube for directing said helium inflation fluid into said side curtain to inflate said side curtain, said fill tube being for distributing said helium inflation fluid evenly along the length of said side curtain to cause pressurization of said side curtain evenly along its length and maintain said pressurization for at least 5 seconds, said fill tube also being for heating said helium inflation fluid so that the helium in said side curtain has a temperature about equal to an ambient temperature in which said side

curtain is deployed for at least 95% of said at least 5 seconds.

57. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof, said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in the vehicle and a rearward portion for location rearwardly in the vehicle;

an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure, said inflation fluid source being free from pyrotechnic material for heating said inflation fluid; and

a fill tube having a portion located in said inflatable vehicle occupant protection device extending into said forward portion and said rearward portion of said inflatable volume, said fill tube being in fluid communication with said inflation fluid source, said inflation fluid source, when actuated, providing said inflation fluid to said fill tube, said fill tube including outlet apertures arranged in

groups that are spaced apart from each other along said portion of said fill tube, the number of said outlet apertures in each of said groups and the spacing of said groups along said fill tube being selected to direct said inflation fluid into said inflatable volume to inflate said forward and rearward portions to generally the same pressure during initial inflation of said inflatable vehicle occupant protection device and to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first pressure, for at least the initial 5-7 seconds of inflation;

said inflation fluid being directed through said outlet apertures into said forward portion and said rearward portion of said inflatable volume to inflate said forward and rearward portions at generally the same temperature during initial inflation of said inflatable vehicle occupant protection device for at least 95% of at least the initial 5-7 seconds of inflation, said temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated.

58. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure and a roof, said apparatus comprising:

an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position

between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in the vehicle, a rearward portion for location rearwardly in the vehicle, and a non-inflatable portion located between said forward portion and said rearward portion;

an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant protection device, said inflation fluid consisting essentially of helium stored under pressure, said inflation fluid source being free from pyrotechnic material for heating said inflation fluid; and

a fill tube having a portion located in said inflatable vehicle occupant protection device extending into said forward portion and said rearward portion of said inflatable volume, said fill tube being in fluid communication with said inflation fluid source, said inflation fluid source, when actuated, providing said inflation fluid to said fill tube, said fill tube including outlet apertures positioned along said portion of said fill tube for directing said inflation fluid into said inflatable volume to inflate said inflatable vehicle occupant protection device initially to a first desired pressure and maintain said inflatable vehicle occupant protection device inflated above a second desired pressure, less than said first pressure, for at least the initial 5-7 seconds of inflation;

said inflation fluid being directed through said outlet apertures into said forward portion and said rearward portion of said inflatable volume to inflate said forward and rearward portions, said inflation fluid directed into said forward portion and said inflation fluid directed into said rearward portion having generally the same temperature and generally the same pressure during initial inflation of said inflatable vehicle occupant protection device, said inflation fluid in said inflatable vehicle occupant protection device having a temperature about equal to an ambient temperature in which said inflatable vehicle occupant protection device is inflated for at least 95% of at least the initial 5-7 seconds of inflation.

59. (Previously Presented) A method for helping to protect an occupant of a vehicle that has a side structure and a roof, said method comprising the steps of:

providing an inflatable vehicle occupant protection device that is inflatable away from the vehicle roof into a position between the side structure of the vehicle and a vehicle occupant, said inflatable vehicle occupant protection device defining an inflatable volume and having a length extending along the side structure of the vehicle, said inflatable volume including a forward portion for location forwardly in the vehicle and a rearward portion for location rearwardly in the vehicle;

providing an inflation fluid source that provides inflation fluid for inflating said inflatable vehicle occupant

a stored helium inflator for providing helium inflation fluid for inflating said side curtain, said inflator being free from pyrotechnic material for heating said helium inflation fluid; and

a fill tube for directing said helium inflation fluid into said side curtain to inflate said side curtain, said fill tube including outlet apertures arranged in groups that are spaced apart from each other along said portion of said fill tube, the number of said outlet apertures in each of said groups and the spacing of said groups along said fill tube being selected to distribute said helium inflation fluid evenly along the length of said side curtain to cause pressurization of said side curtain evenly along its length and maintain said pressurization for at least 5 seconds, said fill tube heating said helium inflation fluid so that the helium in said side curtain has a temperature about equal to an ambient temperature in which said side curtain is deployed for at least 95% of said at least 5 seconds.

61. (Previously Presented) Apparatus for helping to protect an occupant of a vehicle that has a side structure, said apparatus comprising:

an inflatable side curtain having a length extending along the vehicle side structure, said side curtain including a forward portion for location forwardly in the vehicle, a rearward portion for location rearwardly in the vehicle, and a non-inflatable portion located between said forward portion and said rearward portion;